



Data Problems of Primary and Secondary Education in Assam and their Redressal

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Data Problems of Primary Education in Assam and their redressal

1. Background:

For improving the performance of any education system mapping of the Primary schools and their most precious resource i.e. students is extremely important. This mapping is vital for the reason that it forms a base on which embarks entire planning, resource allocation and course corrections etc in the pursuit of improvement. The vast number of schools, changing attendance of the students and ability of the manpower deployed for survey with precision can widely vary and can give diverse results. Thus it becomes a challenging and herculean task.

This project in Assam is an example, as to how the accurate mapping of the Primary School children across the State can be done and how veritably it can contribute to better performance.

An award winning similar model was done by Sarva Shiksha Abhiyan (SSA), Gujarat in school mapping to strengthen the elementary education system. The Gujarat initiative was conferred Silver Award by the Department of Administrative Reforms, Ministry of Administrative Reforms & Public Grievances, Govt. of India in the national e-governance Awards 2013-14. Basically, this award winning initiative had two steps. 1. GIS School Mapping and 2. Synchronising the departmental school data i.e District Information System for Education (DISE). The DISE Survey is annually conducted by the Govt. of India to get a standard database for entire planning on school education system.

Moreover, with the enactment of the Right of Children to Free and Compulsory Education Act, 2009 in the country, it has become a mandate to provide free and compulsory Elementary Education to each and every Child of the age group of 6-14 Years. The major Challenge in the sector of Elementary Education is the incorrect information/data of children within the age group of 6-14 years, both enrolled in Schools and non-enrolled. Thus, it is a statutory requirement to have Primary school and out of school children data with precision.

After observing the most vital nature of this data, which stands as a foundation for entire planning and actions of Sarva Shiksha Abhiyan, Assam, the following ideas have crept in that something better than the award winning initiative can be done. If the pure and most authentic data is collected before DISE survey, then this will get captured in DISE survey. This data can be superimposed on the GIS mapping of schools.

GIS mapping is already completed in Assam for all schools and habitations and was widely appreciated by 21st Joint Review mission of SSA, Govt. of India. Hence, after joining as Mission Director, SSA, Assam best efforts were put in to collect the vital Primary School student data with precision to match the referred award winning initiative of Gujarat or to do better than that.

2. Project, Priorities and Purposes:

The project aimed to get the first hand, most clean and pristine data involving the local level functionaries, utilizing the best technologies/software, with inherent systems of double verification, course correction possibilities during the process and involvement of parents. The last but not the least utilization of this authentic data for functioning of SSA, Assam to get the best results.

Basically, this project consists of three steps *i.* data collection of student enrolment in every school *ii.* Verification and cleaning of enrolment data and *iii.* Utilization of this data for the activities of SSA to get better results.

i. Data Collection:

Under this Project, Assam Sarva Shiksha Abhiyan implemented an automated and centralized software system which enabled real time data collection using internet connected electronic devices from the field. Using this system, Cluster Resource Centre Coordinators(CRCCs) across the state of Assam conducted field verification with their handheld tablet computers on a daily basis. The data collected by CRCCs came to central server through internet. Intelligent data mining algorithms were introduced to extract the most important information for informed decision making.

For the data capturing works a portal www.ssaassamportal.in is developed and utilised. All required reports were incorporated in the portal. The data collection of each student is done in the lines of name, parents name, gender, age, address etc. with photograph and birth certificate (wherever available but not mandatory) for all schools.

The most important module of the system is duplicate student detection. Data mining technology is used to sieve such duplicate students from the database in nearby schools. The module has following remarkable features:

- a. It has the ability to detect duplicate student entry.
- b. Student with same name, parents name and date of birth is considered as duplicate.
- c. It generates reports of duplicate students at Cluster, Block and District levels.
- d. Detected duplicate students records are editable through user friendly interface.
- e. The system will prompt during the student's data entry itself if a duplicate entry attempt is made.
- f. Comparison with Clusters and Block are used to find duplicate students.
- g. Provision to upload student's photo and birth certificate to verify duplication.

The system was hosted in Amazon web server for quick and easy access so that user doesn't feel any time delay and can feel easy retrieval.

ii. Verification and cleaning of enrolment data:

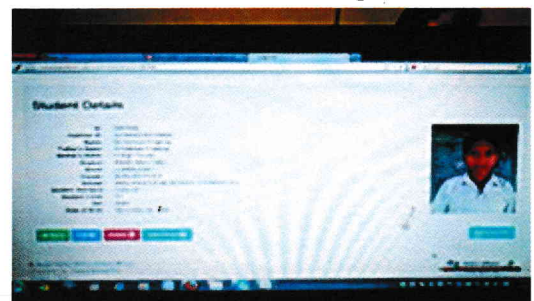
As the entire effort was to obtain the most pure and pristine data, the cleaning exercise of enrolment data assumes primacy. The cleaning exercise basically acts upon the data of following categories of entries:

- a. Duplicate names of students in nearby school
- b. Names of the students who are not attending school for more than one month.
- c. Names of the students whose names are entered in the attendance register since ½ years but never attended but shown either as promoted or as repeater.
- d. Students who are under age i.e below six years.

After identifying this kind of students, extreme care is taken so that not even a single real



Online uploading of enrolled children photograph through tablet computer



Online collection of child details

student is considered duplicate. For this exercise of examining the list of above category students a Cluster Level Committee chaired by Block Elementary Education Officer (BEEO) was constituted. Thereafter, the decision of deletion will be done only with the approval of Block Level Committee chaired by Circle Officer.

This exercise covered all the elementary schools. The school to which the student actually belongs to is decided by obtaining an undertaking from parents concerned.

To improve the authenticity of data, the photograph of each student is made mandatory. The photograph was taken in the school during the verification process itself by the CRCC as per the data entered in the online monitoring system. For this entire exercise 3,234 tablet computers were used. The CRCCs visited the schools with prior intimation so that all the students attend school and facilitate capturing the photographs. To further purify the data, the list of students with photographs was downloaded and checked at block level by Block Level Committee for duplication (if any) and duplicate names were provided to the concerned CRCC for deletion after due validation.

As a final check to improve the authenticity, concerned CRCC visited the schools and cross checked printed list with the attendance register with the clear remarks as below

Type of Students identified	Category
Students with Photograph	A
Students without Photograph (unavailable)	B
Identification of duplicate name of students in nearby schools	C
Names of the students who are not attending for more than one month	D
Names of the students whose names are entered in the Attendance Register since 1/2 years but never attended and are shown either promoted or shown as repeater	E
Identified students who are underage i.e. Below 6 years (5 or Less)	F

The Block level committees deleted B, C, D, E categories of students from the system directly and from the Attendance Register of the schools. In case of F category, birth certificate/ relevant documents were checked to confirm the age. The verification process was completed before 31/09/2015 so that the most accurate and actual data is available for UDISE survey 2015-16 conducted by Ministry of HRD, Govt. of India. (The collection of photographs could not be completed in 13% of schools in the State due to non-availability of connectivity. In these schools, an offline photo collection system is used to collect photographs of all students studying in the school. Wherever it is still left out, it was proposed to conduct it in the next year).

After this survey, when compared with the data of 2014-15 in the lower primary schools alone there is a reduction of 7.9 % students.

iii. Utilization of data for the activities of SSA

The data was extensively used by SSA, Assam in the HR management of teacher postings, transfers were based on the new PTR (Pupil Teacher Ratio) and requirement of sanction of Additional Class Rooms was also based on new findings. The free text books and uniforms supply and distribution, distribution financial resources such as cooking cost and transportation cost for mid-day meal etc also used this new authentic data. The further details of benefits and positive changes are given in the later section.

3. Strategies adopted:

a. *Creation of trained manpower to carry out the project in entire Assam with no additional HR cost :*

The huge number of public and private schools having students of 6 to 14 years age group could be covered in a time bound manner only with the high capacities of the manpower used. Further, this requirement of manpower was not contemplated to be hired or engaged from outside as it would immensely add to the cost. Hence the Cluster Resource Centre Coordinators (CRCC) were found fit to carry this job. Their local knowledge and vast experience came to be of immense use. All the CRCCs of Assam were trained in the State Mission Office with hands on training before commencing this project.

b. *Utilization of technology:*

The vastness of the exercise and continuous feedback required during the process to stir through the data and provide customised reports, offering suggestions online can improve the efficiency of the project. Hence, a software was specially designed and made available for the tablet computers used in the field.

c. *On hands verification than collecting the data and verifying it post facto*

The project is designed in such a way- to avoid the mechanical collection of data and verifying it in a meeting post facto. The system is designed in such a manner that, while entering student details itself on a tablet the CRCC will get a hint that it could be a duplicate entry. This strategy reduced lot of extra time and resources which would have been wasted by collecting wrong data and removing it at a later stage through a process.

d. *Resultant authentic pristine data as the prime concern:*

The Gujarat model absorbed the DISE data as it is available, but in this project the strategy was to make the best and most authentic data available for DISE. This is one step beyond the Gujarat model. For this purpose multiple checks and balances have been designed namely collection of data only from the schools in an online manner so that no post modification is done. The technology mines through the data in an online manner and provides suggestions. After technological scrutiny two committees scrutinised the data one is Cluster Level Committee chaired by Block Elementary Education Officer and second level above it is Block Level Committee chaired by Circle Officer.

To improve the authenticity, each child is photographed and the list with photographs is again compared with the school Attendance Register and students were categorised into A, B, C, D, E & F and deletions were made with due consultation with the parents and verification of documents. Thus, every effort was made to get the most authentic and pristine data.

e. *Utilization of data for government planning purposes and for practical utility:*

The HRD Ministry recognises only UDISE survey for fund sanction and planning. Hence strategically this project is planned and completed before UDISE survey so that the survey



CRCC orientation at Hailong, Dima Hasao



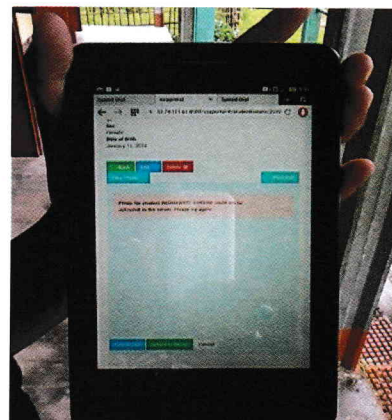
Training of DEEOs, DIs and District SSA officials

captures only the authentic data to be used for practical utility. Hence the entire project is aimed at not mere survey but to get the best result after the survey too.

4. Innovative methods used:

The project used some innovative methods so far not used in Assam.

- Utilization of Tablet computer for entire Assam to survey all educational institutes both public and private through online connectivity.
- Utilization of software that gives suggestions of functional utility in the data entry stage itself.
- Involvement of technology coupled with discretion of human element by scrutiny through Cluster Level and Block Level Committees.
- If the surveys were conducted separately and photographs are updated later, there would be a chance for error. In this project, the survey and photograph collection were simultaneously done. This has added authenticity to the entire survey.



Exclusive software being used to identify duplicate data

5. Period of implementation:

March, 2015 - till date

6. Exceptional achievement and positive changes after the project:

i. Correcting the incorrect data of Assam Educational Scenario:

The project after the survey could capture the entire state of Assam with individual precision details of each child. It is evident from the under mentioned table that this project could capture and compare the details of each student across all the districts:

Sl. No	Districts	DISE 14-15 (Before Project)			DISE 15-16 (After Project)			Reduced By		
		LP			LP			LP		
		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
1	BAKSA	104.50%	110.50%	107.50%	89.05%	95.22%	92.08%	15.45%	15.28%	15.42%
2	BARPETA	104.70%	106.50%	105.60%	92.82%	94.38%	93.59%	11.88%	12.12%	12.01%
3	BONGAIGAON	105.00%	106.60%	105.80%	99.74%	101.21%	100.46%	5.26%	5.39%	5.34%
4	ACHAR	106.30%	106.80%	106.60%	97.84%	97.49%	97.67%	8.46%	9.31%	8.93%
5	CHIRANG	120.20%	122.20%	121.20%	113.75%	116.49%	115.10%	6.45%	5.71%	6.10%
6	DARRANG	106.40%	110.90%	108.60%	97.75%	102.88%	100.28%	8.65%	8.02%	8.32%
7	DHEMAJI	107.20%	113.20%	110.10%	103.85%	108.72%	106.24%	3.35%	4.48%	3.86%
8	DHUBRI	117.10%	119.20%	118.10%	102.91%	104.96%	103.92%	14.19%	14.24%	14.18%
9	DIBRUGARH	98.50%	99.10%	98.80%	98.66%	99.24%	98.94%	-0.16%	-0.14%	-0.14%
10	DIMA HASAO	100.20%	102.10%	101.10%	80.87%	82.76%	81.80%	19.33%	19.34%	19.30%
11	GOALPARA	111.70%	113.60%	112.70%	100.90%	100.20%	100.55%	10.80%	13.40%	12.15%
12	GOLAGHAT	101.30%	103.40%	102.30%	98.06%	99.91%	98.97%	3.24%	3.49%	3.33%
13	HAILAKANDI	153.80%	151.00%	152.40%	116.90%	116.77%	116.84%	36.90%	34.23%	35.56%
14	JORHAT	98.80%	101.50%	100.10%	100.10%	101.78%	100.93%	-1.30%	-0.28%	-0.83%
15	KAMRUP-(M)	87.50%	93.40%	90.40%	94.44%	98.87%	96.59%	-6.94%	-5.47%	-6.19%
16	KAMRUP-R	102.80%	107.10%	104.90%	97.37%	100.17%	98.75%	5.43%	6.93%	6.15%
17	K- ANGLONG	107.20%	111.10%	109.10%	92.42%	95.75%	94.05%	14.78%	15.35%	15.05%
18	KARIMGANJ	130.20%	125.10%	127.70%	113.83%	114.91%	114.36%	16.37%	10.19%	13.34%
19	KOKRAJHAR	119.80%	122.30%	121.00%	106.59%	107.60%	107.09%	13.21%	14.70%	13.91%
20	LAKHIMPUR	107.40%	110.20%	108.80%	102.57%	104.93%	103.73%	4.83%	5.27%	5.07%
21	MORIGAON	105.70%	109.20%	107.40%	95.59%	98.78%	97.15%	10.11%	10.42%	10.25%
22	NAGAON	97.60%	101.90%	99.70%	92.89%	97.36%	95.08%	4.71%	4.54%	4.62%
23	NALBARI	106.00%	106.40%	106.20%	105.61%	105.49%	105.55%	0.39%	0.91%	0.65%
24	SIBSAGAR	107.40%	106.50%	106.90%	102.57%	102.67%	102.62%	4.83%	3.83%	4.28%
25	SONITPUR	94.30%	95.90%	95.10%	91.86%	94.88%	93.34%	2.44%	1.02%	1.76%
26	TINSUKIA	89.70%	90.40%	90.00%	91.08%	90.78%	90.93%	-1.38%	-0.38%	-0.93%

Sl. No	Districts	DISE 14-15 (Before Project)			DISE 15-16 (After Project)			Reduced By		
		LP			LP			LP		
		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
27	UDALGURI	105.20%	110.00%	107.60%	93.69%	97.91%	95.77%	11.51%	12.09%	11.83%
	Total	106.50%	108.70%	107.50%	98.51%	100.74%	99.60%	7.99%	7.96%	7.90%

As many as 7.9% of fake/duplicate entries were detected in Lower Primary Schools and they were deleted.

PTR	2014-15	2015-16
PTR-LP	28	26
PTR-UP	17	16

The vital indicator, Pupil Teacher Ratio (PTR) has improved after this project.

ii. **Correcting the inconsistent data to a consistent one**

There used to be always a problem during the analysis of DISE enrolment data with the actual enrolment in the district. This used to create lot of problems in the distribution of resources to the schools where at times excess resources are given and at times less. The Net Enrolment Ratio was found to be more than 100% in some districts which clearly suggests dubious/fake and inflated enrolment.

This is added with a fact that one cannot defy DISE survey data as it is the only data that used to be relied upon by both State Government and Government of India. Hence, this project was conceived to make the most authentic data available before DISE survey itself and get the best result. The following table shows that the net enrolment was decreased by 5,75,780 students after this project as depicted below.

Districts	DISE 14-15	After the Project	Difference(In order of decrease)
KARIMGANJ	306756	226851	79905
SONITPUR	357715	315871	41844
BAKSA	185000	148615	36385
DHUBRI	553037	518148	34889
NAGAON	584818	555065	29753
BARPETA	406141	378506	27635
HAILAKANDI	204358	177378	26980
KOKRAJHAR	232405	207095	25310
BONGAIGAON	163059	139207	23852
KARBI ANGLONG	242208	220122	22086
CHIRANG	122271	100939	21332
DIBRUGARH	213025	194627	18398
DHEMAJI	166687	149031	17656
CACHAR	343336	325748	17588
SIBSAGAR	207748	191507	16241
GOLAGHAT	185161	169633	15528
MORIGAON	213470	197961	15509
NALBARI	135420	120688	14732
DIMA HASAO	55996	42186	13810
UDALGURI	151040	137431	13609
JORHAT	171822	158629	13193
LAKHIMPUR	227619	215471	12148
GOALPARA	243224	233906	9318
KAMRUP-RURAL	281902	272989	8913
DARRANG	208693	200815	7878
KAMRUP-METRO	161869	155549	6320
TINSUKIA	223117	218149	4968
Total	6547897	5972117	575780

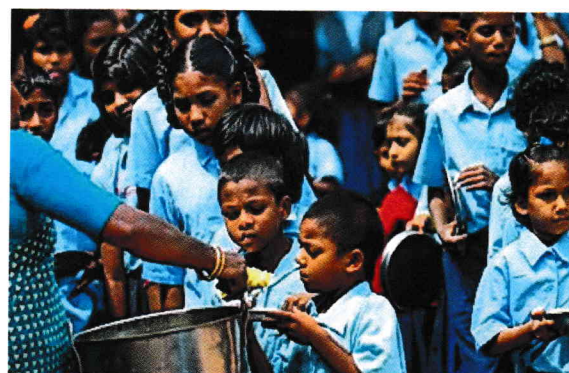
iii. Ability to target Out of school children and Children with Special Needs (CWSN):

There used to be failure to address accurately the target groups who really need efforts of Education department i.e. Out of schools children and Children with Special Needs. Previously, children were reflected in multiple schools and the data reflected was only a number of the child but not his/her identity. All these variations made it difficult to assess Out of school children and CWSN accurately and plan for education of these children. The indicators like- Pupil Teacher Ratio (PTR), Student Classroom Ratio, Dropout rate were always affected due to such inaccuracies that were existed. The HR planning like placing teachers as per the requirement of the number of students used to be never perfect, but after this project all these problems were addressed. Better targeting Out of school children, drop out children and CWSN children resulted.

Regarding Out of School children with qualitative data at hands, the integration of every student is being done with the database of Child Tracking System(CTS) to identify and track the Out of school children whether the child is continuing education after mainstreaming. Thus, 1,06,646 Out of school children are tagged with nearby schools and linked with CTS.

iv. Saving of public resources and better targeting:

There used to be inefficient use of resources in terms of funds, manpower, materials like free textbooks, uniforms, mid-day meal etc. After utilizing this new data, SSA, Assam observed that when compared to last year a huge amount of approximately 47.60 crores is saved through proper planning and reduction in unnecessary fund releases to an inflated figure like in last year.



Sl. No	Name of Activity	Amount Saved (In Lakhs)
1	Free text Book	1573.62
2	Uniform	2521.24
3	MDM –Cooking Cost	95.95
4	MDM- Cost to Food grains	459.32
5	MDM- Transportation	110.56
TOTAL		4760.69

It is pertinent to mention that for this entire project execution, Rs.75.10 lakhs was only spent which is extremely economical when compared with the savings and the quality improvement contributed by this project.

7. Sustainability and Replicability:

The project has used existing HR available with SSA and with no additional hiring of any manpower. The material needs of tablet computers etc. are already available and GIS mapping of these schools have already been done. Hence, no additional costs. The manpower are already trained and the costs incurred for this project are very less when compared to quality improvement, targeting of the needy, best distribution and utilization of resources and the resultant savings which amount to more than 50 times than the expenditure.

Thus, the project is very low cost with huge benefits. Most of the resources including trained & experienced manpower are readily available and are part of SSA. Hence, it veritably suggests that the project is easily sustainable and replicable.

8. Nature of contribution by the nominee:

i. Conception of idea:

After observing the award winning Gujarat model it is conceptualized that a similar exercise can be done in Assam also; and it can be done in a better manner far exceeding than that of Gujarat model. The basic idea of gathering best details from the field and make it as a platform for systemic corrections and better functioning was visualized.

ii. Systematic designing of the project:

The multiple steps of the project were designed namely- data collection, enrolment verification, utilization of technologies, formation of committees, involvement of parents, multiple checks and balances etc. These steps were carefully integrated.

iii. Resources for the project and economy:

The project was planned by MD, SSA in such a manner that the project becomes less costly and utilization of already existing resources such as GIS mapping, tablet computers, HR available within the SSA is done to bring the cost very low and resources required further were accommodated within the SSA budget.

iv. Identifying and bringing the technology for the project:

The MD, SSA observed that there is a big role for technology in this massive exercise to be done across the State. The needs of the system for required efficiency were clearly calculated and communicated. The relevant software was developed and materials like servers etc were hired.

v. Preparation for the project: The MD, SSA has prepared the entire HR team at the State level and also across the State from District level, Block level and up to Cluster level. Suitable trainings required were provided up to cluster level.

vi. Execution and completion of the project:

The project right from the day of commencement was regularly reviewed. The analytical reports generated were studied and various course correction steps were taken based on the requirements of the field. The people in the ground level were motivated to ensure that the project is completed before commencement of UDISE survey. The Data generated after the DISE survey was used for better allocation of resources, planning and for the improvement of Primary education system across the State.

9. Tracking the Educational status of students upto Sr. Secondary Level:

A concept of transfer and drop box is introduced in the system to track the student. The drop box concept is used to track the students who left the school and got admitted to nearby school. If a student is not admitted in any school, there is every possibility that he/she may dropped out from the school.

There are three stages to update/ track status of students.

i. Promotion of Student: Promotion of students in next higher class should be done.

ii. Transfer of Student: Basically, student of the terminal class of the school i.e. Class V of Lower Primary school to be transferred to Class VI of nearby Upper Primary school, where he/she got admission. Accordingly, students of Class VIII of Upper Primary school to be transferred to Class IX of nearby secondary school, where he/she got admission.

iii. Tracking of Students using Drop Box:

In case of transfer of any students happens between clusters, blocks and districts, then the concerned user will send the students to another list called drop box and the user of immediate higher level will transfer to the concerned school from the drop box list. The list of students at any point of time will be available through report at all level. It is expected that there is no student left out in the drop box and every students can be tracked during the schooling carrier u to class XII in the present system.

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